EX. Amdt.
9-8-04
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LISTING OF THE CLAIMS

1. (Currently Amended) A method for measuring a wafer position on a lower electrode in a plasma etching device, said method comprising the step of:

placing a wafer on a lower electrode in a process chamber of a plasma etching device, wherein said wafer comprises a front side and a back side;

determining a differential pressure gradient between said front side and said back side of said wafer on said lower electrode within said process chamber; and

measuring a position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect a wafer shift thereof on said lower electrode.

2. (Original) The method of claim 1 further comprising the step of: connecting said process chamber to a pump.

3. (Original) The method of claim 1 further comprising the step of: connecting a throttle valve to said process chamber.

4. (Currently Amended) The method of claim 3 further comprising the step of:

connecting at least one additional valve to said throttle valve, wherein said throttle valve and said at least one additional valve are connected in series with one another between said process chamber and said pump in order to support said determining said pressure gradient between said front side and back side of said wafer and said measuring said position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect said wafer shift on said lower electrode.

5. (Currently Amended) The method of claim 2 further comprising the steps of:

connecting at least one line between said pump and said process chamber; and

connecting at least one pressure gauge to said at least one line between said pump and said process chamber in order to support said determining said pressure gradient between said front side and back side of said wafer and said measuring said position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect said wafer shift on said lower electrode.

6. (Currently Amended) The method of claim 1 further comprising the step of:

connecting a pressure monitor to said process chamber to monitor a pressure associated with said process chamber in order to support said determining said pressure gradient between said front side and back side of said wafer and said measuring said position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect said wafer shift on said lower electrode.

7. (Original) The method of claim 1 wherein the step of determining a differential pressure gradient between said front side and said back side of said wafer, further comprises the step of: determining said differential pressure gradient between said front side and said back side of said wafer utilizing a plurality of associated pressure gauges.

8. (Original) The method of claim 1 further comprising the steps of:

delivering helium to said process chamber; and

thereafter determining said differential pressure gradient between said front said and said back side of said wafer utilizing a plurality of associated pressure gauges.

9. (Original) The method of claim 1 further comprising the step of: indicating an unacceptable wafer shift associated with said on said lower electrode, if said differential pressure gradient is greater than a ten percent value.

10. (Original) The method of claim 1 wherein said process chamber comprises a plasma etching chamber.

11. - ~~20.~~ 17. (Cancelled)

~~21.~~ 18. (New) A method for measuring a wafer position on a lower electrode in a plasma etching device, said method comprising the steps of:

connecting a process chamber of a plasma etching device to a pump;

attaching a throttle valve to said process chamber;

connecting a pressure monitor to said process chamber to monitor a pressure associated with said process chamber;

placing a wafer on a lower electrode in said process chamber of said plasma etching device, wherein said wafer comprises a front side and a back side;

determining said differential pressure gradient between said front side and said back side of said wafer utilizing a plurality of associated pressure gauges; and

measuring a position of said wafer on said lower electrode utilizing said differential pressure gradient, in response to determining said differential pressure gradient between said front side and said back side of said wafer utilizing a plurality of associated pressure gauges.

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22. (New) The method of claim 21 further comprising the step of:

connecting at least one pressure gauge to said at least one line between said pump and said process chamber in order to support said determining said pressure gradient between said front side and back side of said wafer and said measuring said position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect said wafer shift on said lower electrode.

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23. (New) The method of claim 21 further comprising the steps of:

delivering helium to said process chamber; and

thereafter determining said differential pressure gradient between said front said and said back side of said wafer utilizing a plurality of associated pressure gauges in order to support said determining said pressure gradient between said front side and back side of said wafer and said measuring said position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect said wafer shift on said lower electrode.

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24. (New) The method of claim 21 further comprising the step of: indicating an unacceptable wafer shift associated with said on said lower electrode, if said differential pressure gradient is greater than a ten percent value.

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25. (New) The method of claim 21 further comprising the steps of:

connecting at least one pressure gauge to said at least one line between said pump and said process chamber in order to support said determining said pressure gradient between said front side and back side of said wafer and said measuring said position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect said wafer shift on said lower electrode;

delivering helium to said process chamber;

thereafter determining said differential pressure gradient between said front said and said back side of said wafer utilizing a plurality of associated pressure gauges in order to support said determining said pressure gradient between said front side and back side of said wafer and said measuring said position of said wafer on said lower electrode utilizing said differential pressure gradient while said wafer is located on said lower electrode in order to detect said wafer shift on said lower electrode; and

indicating an unacceptable wafer shift associated with said on said lower electrode, if said differential pressure gradient is greater than a ten percent value.

EX. Amdt.

Please amend paragraph 0035 as follows:

FIG. 3 illustrates a block diagram 70 [[40]] of a chamber configuration for plasma etching under wafer transfer shift conditions, in accordance with a preferred embodiment of the present invention. As indicated in FIG. 3, a semiconductor wafer 84 generally placed on a lower electrode 83 in a process chamber 82 of a plasma etching device. Such process chambers can be utilized in plasma etching operations. Wafer 84 (i.e., semiconductor wafer) generally comprises a front side and a backside ~~back side~~. A differential pressure gradient between the front side and the ~~back side~~ backside of wafer 84 can thus be determined, and thereafter, a position of wafer 84 on lower electrode 83 can be measured utilizing the differential pressure gradient. Process chamber 82 is generally connected to a pump 72. Gas flow into process chamber 82 is generally represented by arrow 80.